CPC COOPERATIVE PATENT CLASSIFICATION

E05F DEVICES FOR MOVING WINGS INTO OPEN OR CLOSED POSITION CHECKS FOR WINGS WING FITTINGS NOT OTHERWISE PROVIDED FOR, CONCERNED WITH THE FUNCTIONING OF THE WING

NOTE

In this subclass, the following terms are used with the meanings indicated:

- "closer" or "opener" includes devices for assisting wing-movement or for wing-counterbalancing.

Guide heading:

E05F 1/00 Closers or openers for wings, not otherwise provided for in this subclass

E05F 1/002 . {controlled by automatically acting means (for powered-operated mechanisms E05F 15/20) }
E05F 1/004 . . {by thermostats, rain, wind or noise (E05F 1/006 takes precedence) }
E05F 1/006 . . {by emergency conditions, e.g. fire (operating or controlling mechanisms for physical fire-barriers A62C 2/24) }
E05F 1/008 . . {by time control }

E05F 1/02 . gravity-actuated, {e.g. by use of counterweights }
E05F 1/025 . . {with rectilinearly-moving counterweights }
E05F 1/04 . . for wings which lift during movement, {operated by their own weight }
E05F 1/043 . . . {with cams, helical tracks (E05F 1/061 takes precedence) }
E05F 1/046 . . . { with rectilinearly-inclined tracks for sliding wings }
E05F 1/06 . . . Mechanisms in the shape of hinges or pivots, operated by the weight of the wing
E05F 1/061 . . . . {with cams or helical tracks }
E05F 1/063 . . . . . {with complementary, substantially identical and slidingly cooperating cam surfaces (E05F 1/066 takes precedence) }
E05F 1/065 . . . . . {Cam-and-wheel arrangements }
E05F 1/066 . . . . . {Helical grooves, slots, threads or the like }
E05F 1/068 . . . . {with inclined pivot-axes }

E05F 1/08 . spring-actuated, {e.g. for horizontally sliding wings (counterbalancing sliding or lifting wings E05D ; springs per se F16F , e.g. gas-springs F16F 9/00) }
E05F 1/10 . . for swinging wings, {e.g. counterbalance (spring-assisted actuation of lids or covers of refuse receptacles B65F 1/1623) }
E05F 1/1008 . . . {with a coil spring parallel with the pivot axis (E05F 1/1207 takes precedence) }
E05F 1/1016 . . . . {with a canted-coil torsion spring }

E05F 1/1025 .... { with a compression or traction spring }
E05F 1/1033 ... {with a torsion bar (E05F 1/123 takes precedence) }
E05F 1/1041 ... {with a coil spring perpendicular to the pivot axis (E05F 1/1246 takes precedence) }
E05F 1/105 .... {with a compression spring }
E05F 1/1058 ..... {for counterbalancing }
E05F 1/1066 .... {with a traction spring }
E05F 1/1075 ..... {for counterbalancing }
E05F 1/1083 ... {with a leaf or similar spring (E05F 1/1284 takes precedence) }
E05F 1/1091 ... {with a gas spring (E05F 1/1292 takes precedence) }
E05F 1/12 ... Mechanisms in the shape of hinges or pivots, operated by springs { for hinges with two or more pins E05D 3/06 }
E05F 1/1207 .... {with a coil spring parallel with the pivot axis }
E05F 1/1215 ..... {with a canted-coil torsion spring }
E05F 1/1223 ..... {with a compression or traction spring }
E05F 1/123 .... {with a torsion bar }
E05F 1/1238 ..... {specially adapted for vehicles }
E05F 1/1246 .... {with a coil spring perpendicular to the pivot axis }
E05F 1/1253 ..... {with a compression spring }
E05F 1/1261 ..... {for counterbalancing }
E05F 1/1269 ..... {with a traction spring }
E05F 1/1276 ..... {for counterbalancing }
E05F 1/1284 .... {with a leaf or similar spring }
E05F 1/1292 .... {with a gas spring }
E05F 1/14 ... with double-acting springs, e.g. for closing and opening or checking and closing {no material }
E05F 1/16 .. for sliding wings

E05F 3/00 **Closers or openers with braking devices, e.g. checks**
Construction of pneumatic or liquid braking devices (construction of non-pneumatic or non-liquid braking devices E05F 5/00; friction devices in hinges E05D 11/08)

E05F 3/02 . with pneumatic piston brakes (rotary type E05F 3/14)

E05F 3/04 . with liquid piston brakes (rotary type E05F 3/14)
E05F 3/06 .. in which a torsion spring rotates a member around an axis perpendicular to the axis of the piston
E05F 3/08 .. in which a torsion spring rotates a member around an axis arranged in the direction of the axis of the piston
E05F 3/10 .. with a spring, other than a torsion spring, and a piston, the axes of which are the same or lie in the same direction
E05F 3/102 ... {with rack-and-pinion transmission between driving shaft and piston within the closer housing }
E05F 3/104 ... {with cam-and-slide transmission between driving shaft and piston within the closer housing }

E05F 3/106 . . . {with crank-arm transmission between driving shaft and piston within the closer housing }

E05F 3/108 . . . {with piston rod protruding from the closer housing; Telescoping closers }

E05F 3/12 . . Special devices controlling the circulation of the liquid, e.g. valve arrangement ({E05F 3/223 takes precedence }; valves per se F16K)

E05F 3/14 . with fluid brakes of the rotary type

E05F 3/16 . with friction brakes

E05F 3/18 . with counteracting springs (double-acting springs E05F 1/14)

E05F 3/20 . in hinges

E05F 3/22 . Additional arrangements for closers, e.g. for holding the wing in opened or other position

E05F 3/221 . . {Mechanical power-locks, e.g. for holding the wing open or for free-moving zones }

E05F 3/222 . . . { electrically operated (E05F 3/223 takes precedence) }

E05F 3/223 . . { Hydraulic power-locks, e.g. with electrically operated hydraulic valves }

E05F 3/224 . . {for assisting in opening the wing }

E05F 3/225 . . { mounted at the bottom of wings, e.g. details related to seals, covers, connections to the wings, embedding in the floor }

E05F 3/226 . . . { with means to adjust the closed position of the wing }

E05F 3/227 . . { mounted at the top of wings, e.g. details related to closer housings, covers, end caps or rails therefor }

E05F 5/00 **Braking devices, e.g. checks**
Stops
Buffers; {Dovetails with buffering action }**;** (construction of pneumatic or liquid braking devices E05F 3/00; combined with devices for holding wings open E05C 17/00; devices for limiting opening of wings or for holding wings open by a movable member extending between frame and wing E05C 17/04)

E05F 5/003 . {for sliding wings (E05D 13/04 takes precedence) }

E05F 5/006 . { for hinges having a cup-shaped fixing part, e.g. for attachment to cabinets or furniture }

E05F 5/02 . specially for preventing the slamming of {swinging } wings {during final closing movement, e.g. jamb stops }

E05F 5/022 . . {specially adapted for vehicles, e.g. for hoods or trunks }

E05F 5/025 . . . {specially adapted for vehicle doors }

E05F 5/027 . . {with closing action }

E05F 5/04 . . hand-operated, {e.g. removable }
operated by centrifugal action {or by high closing speed }

E05F 5/06 . Buffers {or stops limiting opening of swinging wings, e.g. floor or wall stops } (E05F 5/02 takes precedence)

E05F 5/08 . . with springs

E05F 5/10 . . with piston brakes

E05F 5/12 . specially for preventing the closing of a wing before another wing has been closed

E05F 7/00 **Miscellaneous accessories for wings** (specially adapted for furniture A47B 95/00; door-lifters B66F , E04F 21/00; knobs or handles E05B)

E05F 7/005 . {Aligning devices for wings }

E05F 7/02 . for raising wings before being turned {before sliding E05D 15/565 }

E05F 7/04 . Arrangements affording protection against rattling (with buffering action E05F 5/00)

E05F 7/06 . Devices for taking the weight of the wing, arranged away from the hinge axis

E05F 7/08 . Special means for transmitting movements between vertical and horizontal sliding bars, rods, or cables { (E05D 15/5208 takes precedence) }

Guide heading: **Operating mechanisms for wings** (for safeguarding bank teller windows E05G 5/00; for interconnected louvres E06B 7/086; for blinds or roll-type closures E06B 9/00)

E05F 9/00 **Means for operating wings by hand rods not guided in or on the frame, including those which also operate the fastening** (bolts or fastening devices for wings E05C)

E05F 11/00 **Man-operated mechanisms for operating wings, including those which also operate the fastening** (connecting mechanisms for a plurality of wings E05F 17/00)

E05F 11/02 . for wings in general, e.g. fanlights (E05F 11/36 takes precedence; for windows to be lowered vertically E05F 11/38; for doors E05F 11/54)

E05F 11/04 . . with cords, chains or cables

E05F 11/06 . . . in guide-channels

E05F 11/08 . . with longitudinally-moving bars guided, e.g. by pivoted links, in or on the frame

E05F 11/10 . . . Mechanisms by which a handle moves the bar

E05F 11/12 . . . Mechanisms by which the bar shifts the wing

E05F 11/14 . . . . directly, i.e. without links, shifting the wing, e.g. by rack and gear or pin and slot

E05F 11/145 . . . . . {by pin and slot }

E05F 11/16 . . . . shifting the wing by pivotally-connected members {(moving) in a plane perpendicular to the pivot axis of the wing }

E05F 11/18 . . . . . consisting of a lever, e.g. an angle lever, only {no material }

E05F 11/20 . . . . . consisting of a lever, e.g. an angle lever, and only one additional link {no material }

E05F 11/22 . . . . . consisting of a lever, e.g. an angle lever, and tow or more additional links in series {no material }

E05F 11/24 . . . . shifing the wing by pivotally-connected members {(moving) in a plane parallel to the pivot axis of the wing }

E05F 11/26 . . . . . consisting of a lever, e.g. an angle lever, only {no material }

E05F 11/28 . . . . . consisting of a lever, e.g. an angle lever, and one or more additional links {no material }

E05F 11/30 . . . . . consisting of links in rhomb-form {no material }

E05F 11/32 . . with rotary bars guided in the frame (E05F 11/34 takes precedence)

E05F 11/34 . . with screw mechanisms

E05F 11/36 . specially designed for passing through a wall

E05F 11/38 . for sliding windows, e.g. vehicle windows, to be opened or closed by vertical movement

E05F 11/382 . . {for vehicle windows (E05F 11/40 to E05F 11/52 take precedence) }

E05F 11/385 . . . {Fixing of window glass to the carrier of the operating mechanism }

E05F 11/40 . . operated by screw mechanism

E05F 11/405 . . . {for vehicle windows }

E05F 11/42 . . operated by rack bars and toothed wheels {or other push-pull mechanisms }

E05F 11/423 . . . {for vehicle windows }

E05F 11/426 . . . . {Flexible rack-and-pinion arrangements }

E05F 11/44 . . operated by one or more lifting arms

E05F 11/445 . . . {for vehicle windows }

E05F 11/46 . . operated by lazy-tong mechanism

E05F 11/465 . . . {for vehicle windows }

E05F 11/48 . . operated by cords or chains {or other flexible elongated pulling elements, e.g. tapes }

E05F 11/481 . . . {for vehicle windows }

E05F 11/483 . . . . {by cables }

E05F 11/485 . . . . . {with cable tensioners }

E05F 11/486 . . . . . {with one cable connection to the window glass }

E05F 11/488 . . . . . {with two cable connections to the window glass }

E05F 11/50 . . Crank gear with clutches or retaining brakes, for operating window mechanisms

E05F 11/505 . . . {for vehicle windows }

E05F 11/52 . . combined with means for producing an additional movement, e.g. a horizontal or a rotary movement

E05F 11/525 . . . {for vehicle windows }

E05F 11/53 . for sliding windows, e.g. vehicle windows, to be opended or closed by horizontal movement

E05F 11/535 . . {for vehicle windows }

E05F 11/54 . for doors

E05F 13/00 **Mechanisms operated by the movement or weight of a person or vehicle** (through power-operated wing-operating mechanisms E05F 15/00)

E05F 13/02 . by devices, e.g. lever arms, affected by the movement of the user

E05F 13/04 . by platforms lowered by the weight of the user

E05F 15/00 **Power-operated mechanisms for wings** { (for hatch covers B63B 19/14; for elevator doors B66B 13/00; motor-operated devices for completing closing or initiating opening of a wing E05B 17/0029; limit switches H01H 3/16) }

E05F 15/0004 . {Safety devices, e.g. safety couplings, detection of obstructions or end position (E05F 15/20 takes precedence) ; anti-dropping devices E05D 13/003; by current overload H02H 7/0851 }

E05F 15/0008 . . {specially adapted for vehicle windows or roofs (E05F 15/0013 to E05F 15/0095 take precedence) }

E05F 15/0013 . . {specially adapted for mass transit vehicles (E05F 15/0017 to E05F 15/0095 take precedence) }

E05F 15/0017 . . { Detection by means of monitoring transmitted force or torque (E05F 15/0082, E05F 15/0095 take precedence) ; Safety, e.g. slip, couplings }

E05F 15/0021 . . {Detection using safety edges }

E05F 15/0026 . . . {by disruption of energy beams, e.g. light, sound }

E05F 15/003 . . . . {specially adapted for vehicle windows or roofs }

E05F 15/006 . . . {by change in electrical conductivity }

E05F 15/0065 . . . . {specially adapted for vehicle windows or roofs }

E05F 15/0073 . . . {by change in electrical capacity }

E05F 15/0078 . . . {by change in fluid pressure }

E05F 15/0082 . . . {by transmission of mechanical forces, e.g. rigid, movable members }

E05F 15/0095 . . {specially adapted for pressure medium-operated mechanisms for wings, e.g. detection by means of monitoring transmitted fluid pressure (E05FB15/00B6H takes precedence) }

E05F 15/02 . with pressure medium

E05F 15/025 . . {for folding wings }

E05F 15/04 . . for swinging wings

E05F 15/042 . . . {specially adapted for use in vehicles }

E05F 15/045 . . . . {for railway-cars or mass transit vehicles }

E05F 15/047 . . . {operated by linear motors acting on a helical track coaxial with the suringing axis }

E05F 15/06 . . for horizontally-sliding wings

E05F 15/065 . . . {for railway-cars }

E05F 15/08 . . for vertically-sliding wings

E05F 15/083 . . . {for overhead wings }

E05F 15/086 . . . {for vehicle windows }

E05F 15/10 . with rotary electromotors { (detection of end position by striking, safety couplings E05F 15/0017) }

E05F 15/103 . . {for folding wings }

E05F 15/106 . . {for revolving wings }

E05F 15/12 . . for swinging wings

E05F 15/121 . . . {operated by meshing gear wheels, one of which being mounted at the wing pivot axis; the motor acting directly on the wing pivot axis }

E05F 15/122 . . . {operated by push-pull mechanisms }
E05F 15/123 . . . . {by flexible or rigid rack-and-pinion arrangements }
E05F 15/124 . . . . {by screw-nut mechanisms }
E05F 15/125 . . . . {by friction wheels }
E05F 15/126 . . . {operated by flexible elongated pulling elements, e.g. belts, chains }
E05F 15/127 . . . {operated by swinging arms }
E05F 15/14 . . for horizontally-sliding wings
E05F 15/141 . . . {for railway-cars }
E05F 15/142 . . . {operated by push-pull mechanisms, e.g. friction wheels, flexible or rigid rack-and-pinion arrangements (E05F 15/141, E05F 15/147, E05F 15/148 take precedence) }
E05F 15/143 . . . . {allowing or involving an additional movement of the wing }
E05F 15/145 . . . {operated by flexible elongated pulling elements, e.g. belts, chains (E05F 15/141 takes precedence) }
E05F 15/146 . . . . {allowing or involving an additional movement }
E05F 15/147 . . . {operated by swinging arms (E05F 15/141 takes precedence) }
E05F 15/148 . . . {operated by screw mechanisms (E05F 15/141 takes precedence) }
E05F 15/16 . . for vertically-sliding wings
E05F 15/1607 . . . {for overhead wings }
E05F 15/1615 . . . . {operated by flexible or rigid rack-and-pinion arrangements }
E05F 15/1623 . . . . {operated by screw mechanisms }
E05F 15/163 . . . . {operated by friction wheels }
E05F 15/1638 . . . . {operated by swinging lever arms }
E05F 15/1646 . . . . {operated by flexible elongated pulling elements, e.g. belts (E05F 15/1615 takes precedence) }
E05F 15/1653 . . . . . {by chains }
E05F 15/1661 . . . . . {by cables or ropes }
E05F 15/1669 . . . {for vehicle windows }
E05F 15/1676 . . . . {enabling manual drive, e.g. in case of power failure }
E05F 15/1684 . . . . {Control circuits therefor }
E05F 15/1692 . . . . {Specially adapted motor units, e.g. geared motors }

E05F 15/18 . with other electrical means, e.g. solenoids {or linear motors }

E05F 15/20 . controlled by automatically-acting means, e.g. by photocells, by electric waves, by thermostats, by rain, by fire, {by remote or time control }
E05F 15/2007 . . {by thermostats, rain, wind or noise (E05F 15/2015 takes precedence) }
E05F 15/2015 . . {by emergency conditions, e.g. fire (operating or controlling mechanisms for physical fire-barriers A62C 2/24; locks actuating in response to heat E05B 65/104) }
E05F 15/2023 . . {by detection of movement or presence of persons or objects }
E05F 15/203 . . . {with photocells }
E05F 15/2038 . . . {by the weight or other physical contact of a person or object }
E05F 15/2046 . . . {reacting to a device carried by a person or object, e.g. a magnet or reflector (E05F 15/2076 takes precedence) }

E05F 15/2076 . . {by remote wireless control }

E05F 15/2084 . . . {with light beams }

E05F 15/2092 . . {by time control }

E05F 17/00 **Special devices for shifting a plurality of wings operated simultaneously** (for simultaneously moving a plurality of interconnected ventilating lamellae E06B 7/086)

E05F 17/001 . {of prison cell doors }

E05F 17/002 . {for wings which lie one behind the other when closed }

E05F 17/004 . {for wings which abut when closed }

Guide heading:

E05F 2003/00 **Closers or openers with braking devices, e.g. checks**
Construction of pneumatic or liquid braking devices (construction of non-pneumatic or non-liquid braking devices E05F 5/00; friction devices in hinges E05D 11/08)

E05F 2003/22 . Additional arrangements for closers, e.g. for holding the wing in opened or other position

E05F 2003/228 . . Arrangements where the end of the closer arm is sliding in a track

E05F 2005/00 **Braking devices, e.g. checks**
Stops
Buffers; {Dovetails with buffering action }**;** (construction of pneumatic or liquid braking devices E05F 3/00; combined with devices for holding wings open E05C 17/00; devices for limiting opening of wings or for holding wings open by a movable member extending between frame and wing E05C 17/04)

E05F 2005/02 . specially for preventing the slamming of {swinging } wings {during final closing movement, e.g. jamb stops }

E05F 2005/04 . . hand-operated, {e.g. removable }
operated by centrifugal action {or by high closing speed }

E05F 2005/043 . . . operated by centrifugal action at high closing speed

E05F 2005/046 . . . hand operated

E05F 2011/00 **Man-operated mechanisms for operating wings, including those which also operate the fastening** (connecting mechanisms for a plurality of wings E05F 17/00)

E05F 2011/38 . for sliding windows, e.g. vehicle windows, to be opened or closed by vertical movement

E05F 2011/382 . . {for vehicle windows (E05F 11/40 to E05F 11/52 take precedence) }

E05F 2011/385 . . . {Fixing of window glass to the carrier of the operating mechanism }

E05F 2011/387 . . . . using arrangements in the window glass, e.g. holes

E05F 2015/00 **Power-operated mechanisms for wings** { (for hatch covers B63B 19/14; for elevator

doors B66B 13/00; motor-operated devices for completing closing or initiating opening of a wing E05B 17/0029; limit switches H01H 3/16) }

E05F 2015/0004 . {Safety devices, e.g. safety couplings, detection of obstructions or end position (E05F 15/20 takes precedence) ; anti-dropping devices E05D 13/003; by current overload H02H 7/0851 }

E05F 2015/0021 . . {Detection using safety edges }

E05F 2015/0026 . . . {by disruption of energy beams, e.g. light, sound }

E05F 2015/0034 . . . . with acoustical sensors

E05F 2015/0039 . . . . . using reflection from the obstruction

E05F 2015/0043 . . . . with optical sensors

E05F 2015/0047 . . . . . by interruption of the beam

E05F 2015/0052 . . . . . the beam being parallel to the wing edge

E05F 2015/0056 . . . . . the beam being perpendicular to the wing edge

E05F 2015/006 . . . {by change in electrical conductivity }

E05F 2015/0069 . . . . using switches in serial arrangement

E05F 2015/0086 . . . for detection during opening

E05F 2015/0091 . . . Fault detection of safety edges

E05F 2015/10 . with rotary electromotors { (detection of end position by striking, safety couplings E05F 15/0017) }

E05F 2015/12 . . for swinging wings

E05F 2015/127 . . . {operated by swinging arms }

E05F 2015/128 . . . . the end of the arm sliding in a track
Slider arms therefor

E05F 2015/20 . controlled by automatically-acting means, e.g. by photocells, by electric waves, by thermostats, by rain, by fire, {by remote or time control }

E05F 2015/2023 . . {by detection of movement or presence of persons or objects }

E05F 2015/2053 . . . with acoustical sensors

E05F 2015/2061 . . . with optical sensors (photocells E05F 15/203)

E05F 2015/2069 . . . using camera's

E05F 2017/00 **Special devices for shifting a plurality of wings operated simultaneously** (for simultaneously moving a plurality of interconnected ventilating lamellae E06B 7/086)

E05F 2017/005 . for sliding wings

E05F 2017/007 . . with means for interlocking the wings

E05F 2017/008 . for swinging wings

Guide heading:

E05F 2700/00 **Operating mechanisms for sliding windows**

E05F 2700/02 . Devices for moving and locking sliding windows

E05F 2700/04 . Devices for blocking sliding windows in general